ABSTRACT OF THE DISCLOSURE

[0029]   The fastening tool process controller provides an apparatus and process for programming, controlling, and comparison validation of the semi-automated operation of a transducer equipped and/or non-instrumented, pneumatically driven impulse or impact tool to a repeatable final shutdown torque value. The controller is taught a supply line pressure to output torque ratio for the particular pneumatic tool being used by validation against a NIST traceable standard torque transducer, or through manual checking with a normal torque wrench. This process is referred to as an automatic or manual teach cycle. The ratio provides the controller with the final required line pressure needed to achieve the pre-program torque targeted value. During a learn cycle, the micro-processor of the controller monitors values, either pressure differentials or acoustic signals, corresponding to mass air flow consumed while tightening a sample bolt into the actual application to the previous set torque target value. The data then provides a master volume signature based on mass air flow either pressure differential or acoustic signal, then provides a master signature to which subsequent fastener cycles can be compared for error proofing. An anomaly detection process rejects any fasteners that do not duplicate various threshold values based on the master signature. The controller has the option of tracking rejects and performing fastener counting if desired.